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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Barnes & Thornburg
P. O. Box 2786
Chicago, IL 60690-2786

EXAMINER

WIMER, MICHAEL C

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,653

Applicant(s)KITCHENER ET AL. **Examiner**

Michael C. Wimer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/14/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7,8 and 10-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8 and 10-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-5,10-15 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hagerman et al. (6697643).

Regarding Claims 1-5,11,14 and 19, Hagerman et al. show in Figures 1 (Prior Art),3 and 4, etc., a multiple-input multiple-output wireless communications system 50 and method with steps, comprising:

a dual polarized antenna array comprising a plurality of transmit antenna elements 55 used in the downlink (i.e., TX) of the system, a beamformer 46a (and 46b) for coherently combining elements of a same polarization (e.g., +45

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degrees) to form a first directional beam (e.g., 1,3) having a first polarization and a second directional beam (e.g., 2,4) having a second polarization (e.g., -45 degrees).

The receivers are used for the uplink (i.e., RX) in the system (see column 4, second paragraph). The first and second beams provide two independent MIMO channels, all arranged as claimed.

Regarding Claims 2-5, the antenna elements in respective transmit and receive arrays are polarized in one of two polarizations (+ or - 45 degrees), all arranged as claimed.

Regarding Claim 10, beamformers 46a and 46b are shown as recited.

Regarding Claim 12, each of the pairs of antenna beams (e.g., 1 and 3) is arranged to provide a two-branch MIMO input as claimed.

Regarding Claim 13, a 2:2 MIMO system is shown in Fig. 3.

Regarding Claim 15, the array is disposed in a column as taught in column 1, lines 49-52.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16,17,22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagerman et al. (6697643) in view of applicant's Figures 1 & 2 embodiment.

Hagerman et al are discussed above with respect to the respective claims.

However, Hagerman et al do not suggest a transmission method, such as STC.

Such transmission coding is widely used in Europe and is set forth as being well known with respect to applicant's Fig. 1. It would have been obvious to employ such STC transmission in the Hagerman et al system, as recited in Claims 16 and 17.

5. Claims 7,8,18,20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagerman et al. (6697643) in view of Smith et al. (6211841).

Regarding Claims 7 and 20, Hagerman et al. are cited and discussed above relative to the respective claims.

However, no specific element spacing is suggested. A skilled artisan recognizes that element spacing is critical in such a communication system in order to prevent grating lobes. Such an objective is recognized by Smith et al, and thus it would have been obvious to space the elements less than one wavelength to prevent the grating lobes in the radiation pattern.

Regarding Claims 8 and 21, it would have been obvious to employ non-MIMO and MIMO communications in Hagerman et al. according to the suggestion that Smith et al. discloses multiple systems at one site. Similarly, regarding Claim 18, the type of multiple coding in a system is obvious to the skilled artisan.


R sponse to Arguments

6. Applicant's arguments with respect to claims of record have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wimer whose telephone number is (571) 272-1833. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael C. Wimer
Primary Examiner
Art Unit 2821

MCW

6/23/2004